

Claim Amendments

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A projector type vehicle headlamp comprising:
a light source;
a reflector including a reflection surface for reflecting light from the light source; and
a condenser lens that irradiates reflected light from the reflection surface forwards,
wherein

the reflection surface includes a plurality of segments, and is formed of a free-form surface obtained by deforming a reference ellipsoid of revolution, wherein the reflection surface is formed of a free-form surface obtained by stretching the reference ellipsoid of revolution in one direction and pushing down the reference ellipsoid of revolution in other direction perpendicular to the one direction to deform the reference ellipsoid of revolution,

the light source is arranged between a first focal point of the reference ellipsoid of revolution and the condenser lens, closer to the first focal point than to the condenser lens, and segments forming one end and other end portions of a light distribution pattern include a wide area-illuminating reflection surface that makes the one end and the other end portions substantially a rectangular shape, wherein the other end portion is opposite to the one end portion with respect to a center of the light distribution pattern.

2. (Currently Amended) A projector type vehicle headlamp comprising:
a light source;
a reflector including a reflection surface for reflecting light from the light source; and
a condenser lens that irradiates reflected light from the reflection surface forwards,
wherein

the reflection surface includes a plurality of segments, and is formed of a free-form surface obtained by deforming a reference ellipsoid of revolution, wherein the reflection surface is formed of a free-form surface obtained by stretching the reference ellipsoid of revolution in one direction and pushing down the reference ellipsoid of revolution in other direction perpendicular to the one direction to deform the reference ellipsoid of revolution,

the light source is arranged between a first focal point of the reference ellipsoid of revolution and the condenser lens, closer to the first focal point than to the condenser lens, and

segments forming one end and other end portions of a light distribution pattern include a wide area-illuminating reflection surface that makes the one end and the other end portions substantially a rectangular shape, wherein the other end portion is opposite to the one end portion with respect to a center of the light distribution pattern,

wherein the reflection surface includes

a first continuous segment that forms diffused light at a center portion of the light distribution pattern;

a second continuous segment that forms spot light at the center portion;

a third segment that forms the one end portion; and

a fourth segment that forms the other end portion.

3. (Cancelled).

4. (Original) The vehicle headlamp according to claim 1, wherein the segments forming the one end and the other end portions further include a diffuse reflection surface that diffuses edges of the one end and the other end portions formed substantially in a rectangular shape by the wide area-illuminating reflection surfaces.

5. (Currently Amended) The vehicle headlamp according to claim 1, wherein the segments forming the one end and the other end portions further include a diffuse reflection surface that diffuses edges of the one end and the other end portions formed substantially in a rectangular shape by the wide area-illuminating reflection surfaces, and a portion of the diffuse reflection surface, ~~where~~ which is not substantially illuminated by the light from the light source is not effectively used when a predetermined light distribution pattern for a low beam is formed, includes a luminous intensity-improving reflection surface that increases luminous intensity at the one end and the other end portions formed substantially in a rectangular shape by the wide area-illuminating reflection surface.

6. (Currently Amended) A reflector for a projector type vehicle headlamp, comprising:
a reflection surface that reflects light from a light source toward a condenser lens,
wherein

the reflection surface includes a plurality of segments, and is formed of a free-form surface obtained by deforming a reference ellipsoid of revolution, wherein the reflection surface is formed of a free-form surface obtained by stretching the reference ellipsoid of revolution in one direction and pushing down the reference ellipsoid of revolution in other direction perpendicular to the one direction to deform the reference ellipsoid of revolution,

the light source is arranged between a first focal point of the reference ellipsoid of revolution and the condenser lens, closer to the first focal point than to the condenser lens,
and

segments forming one end and other end portion of a light distribution pattern include a wide area-illuminating reflection surface that makes the one end and the other end portions substantially a rectangular shape, wherein the other end portion is opposite to the one end portion with respect to a center of the light distribution pattern.

7. (Currently Amended) A reflector for a projector type vehicle headlamp, comprising:
a reflection surface that reflects light from a light source toward a condenser lens,
wherein

the reflection surface includes a plurality of segments, and is formed of a free-form surface obtained by deforming a reference ellipsoid of revolution, wherein the reflection surface is formed of a free-form surface obtained by stretching the reference ellipsoid of revolution in one direction and pushing down the reference ellipsoid of revolution in other direction perpendicular to the one direction to deform the reference ellipsoid of revolution,

the light source is arranged between a first focal point of the reference ellipsoid of revolution and the condenser lens, closer to the first focal point than to the condenser lens,
and

segments forming one end and other end portion of a light distribution pattern include a wide area-illuminating reflection surface that makes the one end and the other end portions substantially a rectangular shape, wherein the other end portion is opposite to the one end portion with respect to a center of the light distribution pattern,

wherein the reflection surface includes

- a first continuous segment that forms diffused light at a center portion of the light distribution pattern;
- a second continuous segment that forms spot light at the center portion;
- a third segment that forms the one end portion; and
- a fourth segment that forms the other end portion.

8. (Cancelled).

9. (Original) The reflector according to claim 6, wherein the segments forming the one end and the other end portions further include a diffuse reflection surface that diffuses edges of the one end and the other end portions formed substantially in a rectangular shape by the wide area-illuminating reflection surfaces.

10. (Currently Amended) The reflector according to claim 6, wherein

the segments forming the one end and the other end portions further include a diffuse reflection surface that diffuses edges of the one end and the other end portions formed substantially in a rectangular shape by the wide area-illuminating reflection surfaces, and

a portion of the diffuse reflection surface, ~~where~~ which is not substantially illuminated by the light from the light source is not effectively used when a predetermined light distribution pattern for a low beam is formed, includes a luminous intensity-improving reflection surface that increases luminous intensity at the one end and the other end portions formed substantially in a rectangular shape by the wide area-illuminating reflection surface.

11.-13. (Canceled).

14. (Previously Presented) The vehicle headlamp according to claim 1, wherein the reflection surface has a second focal point.